



MARYLAND DEPARTMENT OF THE ENVIRONMENT

AIR AND RADIATION MANAGEMENT ADMINISTRATION

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FACT SHEET

Maryland's Toxic Air Pollutant (TAP) regulations

1. How long has Maryland had toxic air pollutant regulations?

The Toxic Air Pollutant (TAP) regulations were promulgated in September 1988 to protect the public from TAP emissions from stationary sources of air pollution. These regulations, while not unique in structure to other programs in the United States, are noteworthy due to the number of pollutants considered and the number of sources subject to it.

2. Who must comply with the requirements of the regulations?

The owner or operator of any source constructed (or reconstructed) on or after July 1, 1988 that discharges TAPs and is required to obtain an air quality permit to construct must comply with the requirements of the regulations. (A source is a piece of equipment or a process line that emits or has the potential to emit air pollution.)

The owner or operator of a source constructed before July 1, 1988 must comply with the regulations if the source discharges TAPs and is a type of source that was required to obtain a state permit to operate on or before March 1, 1993.

Fuel burning equipment, charbroilers and gasoline stations are exempt from these regulations. In addition, sources may be exempt from individual requirements in certain cases.

3. What are the requirements?

The requirements of the regulation apply differently to sources depending on whether the source is a new source or an existing source. A new source is any source constructed (or reconstructed) on or after July 1, 1988 that discharges TAPs and is required to obtain an air quality permit to construct. An existing source is a source that is not a new source.

The regulations for toxic air pollutants have three basic requirements. The first requirement is that the owner or operator must quantify the emissions of toxic air pollutants (TAPs) from the premises. There is some subtlety here, as the definition of what is a TAP changes depending on whether the source of air pollution is a new source or an existing source. (See "What is a TAP?" below.)

The second requirement specifies that the owner or operator of all new sources of air pollution and certain existing sources must apply the best available control technology for toxics (T-BACT). The T-BACT demonstration is a top-down demonstration of control strategies (including pollution prevention techniques) for the equipment starting with the most effective strategy. T-BACT is that control strategy that reduces the most toxic air pollution while still being cost effective.

The final requirement of the TAP regulation is the most complicated of the three. For each TAP, the premises-wide emissions must not adversely affect public health. This requirement is known as the ambient impact requirement. When evaluating the effect of a TAP on public health, the Department has established benchmarks called screening levels. Public health is protected when the emissions of a facility are less than the maximum allowable emissions or when off-site impact of the premises-wide emissions of each TAP is less than the screening levels for the TAP, as determined by modeling. (See also "What are allowable emissions?"; "How are screening levels calculated?"; and "How are the federal rules incorporated into Maryland's regulations?", below.)

4. When must sources comply with these regulations?

Owners and operators of existing sources (sources constructed prior to July 1, 1988) had to report certain TAPs by January 1, 1989 and demonstrate compliance with the ambient impact requirement for these TAPs by July 1, 1990. In addition, owners

or operators of existing sources had to report the emissions of more TAPs by January 1, 1991 and satisfy the ambient impact requirement for these TAPs by January 1, 1992.

Owners and operators of new sources (sources constructed or reconstructed on or after July 1, 1988) must comply with all three of the requirements listed in "What are the requirements?", above, before the Department will issue a permit to construct for the new source.

5. **What is a TAP?**

For existing sources (constructed before July 1, 1988), a TAP is any pollutant listed in Code of Maryland Regulations (COMAR) 26.11.16.06 or .07. Over 750 pollutants or classes of pollutants are listed in these regulations.

For new sources (constructed or reconstructed after July 1, 1988), a TAP is any of the listed pollutants in COMAR 26.11.16.06 and .07 plus any other air pollutant that is considered a health hazard, as defined by OSHA. This definition of a TAP creates an open-ended list of pollutants that must be reported and evaluated.

6. **What is the difference between the lists in COMAR 26.11.16.06 and COMAR 26.11.16.07?**

COMAR 26.11.16.06 lists those pollutants that the Department considers carcinogenic, or Class I, pollutants.

COMAR 26.11.16.07 lists the pollutants for which the owner or operator of an existing source must quantify emissions and demonstrate compliance with the ambient impact requirement. This list includes both Class I and Class II (non-carcinogenic) pollutants.

7. **What does "not adversely affect public health" mean?**

It means that the owner or operator of a source must show that their TAP emissions do not create ground level concentrations that would exceed benchmark concentrations. The benchmark concentrations are considered safe or sufficiently conservative that no one would be endangered at that level of exposure. Ground level concentrations resulting from emissions are calculated, not measured. The benchmark concentrations to which the calculated concentrations are compared are called "screening levels". If it can be demonstrated that the calculated ground level concentrations would not exceed the appropriate screening levels for the pollutant, the owner or operator has shown that its emissions would not adversely affect public health.

8. **How are the maximum off-site ground level concentrations calculated?**

Ground level concentrations are calculated by using an air dispersion model. The Maryland regulations require that an EPA approved air dispersion model be used, and there are a few EPA models that are routinely used. For a quick, conservative analysis, EPA's SCREEN model is useful. For a more accurate analysis, EPA's Industrial Source Complex (ISC) model is better. These models are available on the EPA's SCRAM (Support Center for Regulatory Air Models) Web Page. (<http://www.epa.gov/scram001/>).

9. **How are screening levels for TAPs calculated?**

COMAR 26.11.16.03 spells out procedures for calculating screening levels. Generally for threshold (non-cancer) effects, the screening level is based on taking a safe worker exposure level and dividing it by 100 to protect against multiple sources and more sensitive individuals. For carcinogenic effects, a unit risk factor from EPA is usually used that would ensure that the maximum exposed individual would not have an increased cancer risk of 1 in 100,000.

The Air Toxics Office maintains a list of screening levels. The screening levels for selected pollutants are posted on the Air Quality Permits Program website (<http://www.mde.state.md.us/arma/Programs/Aqpermit/aqpermit.html>). Information to obtain a complete list of screening levels can also be found on the website.

10. **Are screening levels similar to National Ambient Air Quality Standards (NAAQS)?**

No, they are not similar. A national ambient air quality standard is the concentration of a substance (e.g. particulate matter or ozone) in the air below which public health is adequately protected. Compliance with a NAAQS is typically determined by a network of regional ambient monitors that measure the concentration of a particular substance in the air. The ambient measured concentration of a substance reflects the contribution of multiple industrial sources, automobiles, residential

sources, and other sources. Screening levels are tools to predict whether the emissions from a single source will unreasonably endanger public health. Sources show that their off-site concentration of a TAP is less than the screening level(s) by use of a computer model.

11. What are the methods available to demonstrate compliance with the ambient impact requirement?

The first method to show compliance with the ambient impact requirement is to examine whether the source is a small emitter of a certain TAP. If the emission rate and screening level(s) for a TAP qualifies as a small emitter (as defined by COMAR 26.11.15.03B(3)), the owner or operator is exempt from the ambient impact requirement (and the T-BACT requirement) for that TAP.

The next method is to use the charts found in COMAR 26.11.16.02. These charts define maximum allowable emission rates based on the screening level of the pollutant and type of source (stack or fugitive). If the emission rate of the TAP (after the application of T-BACT, if applicable) is less than the maximum allowable emission rate from the chart, compliance with the ambient impact requirement has been shown for that TAP.

If the charts cannot be used, the alternative techniques to show compliance involve computer modeling with either a screening model or a refined dispersion model. Compliance with the ambient impact requirement is shown when the predicted concentration from the model is less than the screening level for the TAP.

Computer models can be obtained from the EPA SCRAM (Support Center for Regulatory Air Models) website (<http://www.epa.gov/scram001/>). The most commonly used models are SCREEN or TSCREEN as a screening model and Industrial Source Complex (ISC) model for refined analysis. Owners or operators who use a refined model, such as the ISC model, to show compliance with the TAP regulation are subject to a higher permit to construct application fee.

If an owner or operator cannot show compliance with the ambient impact requirement after refined modeling, there are limited options for waivers or special permits, which would allow higher impacts in certain cases. Otherwise, emissions of those TAPs would need to be reduced further by limiting production levels at the facility or by reformulating materials, for example.

For more information on demonstrating compliance with the ambient impact requirement, check the Air Quality Permits webpage (<http://www.mde.state.md.us/arma/Programs/Aqpermit/aqpermit.html>) for a more detailed explanation and an example.

12. What are allowable emissions?

The allowable emission rate for a TAP is the rate that would not create an exceedence of the applicable screening level(s) or the TAP emission rate at the maximum operating capacity of the facility, whichever is lower. If a facility has emissions that are equal to or less than the allowable emissions, the facility is not creating off-site concentrations greater than the screening level.

13. The Department analyzes each facility individually; what about the combined impacts from multiple facilities?

The screening levels for each TAP are set conservatively enough to take in to account the existence of facilities emitting the same pollutant. (The screening level is either 100 times lower than the safe concentration for workers or reflects a lifetime increased cancer risk of 1 in 100,000.)

14. The Environmental Protection Agency (EPA) is also regulating the emissions of toxic air pollutants. How are the federal rules incorporated into Maryland's TAP regulations?

The EPA has been issuing national emission standards for hazardous air pollutants (NESHAPs) since 1970. Early standards were based on reducing the risk from a single pollutant at a particular type of facility. These standards are written into the Code of Federal Regulations (CFR), Title 40, Part 61.

Since 1990, the EPA has been promulgating standards that reduce emissions of multiple pollutants at a particular type of facility based on achievable technology. These newer standards are commonly called 'MACTs', which stands for maximum achievable control technology. MACT standards are written into the Code of Federal Regulations, Title 40, Part 63.

If a source is subject to a Part 61 NESHAP (the earlier standards), the source must comply with the Part 61 NESHAP, but it

is exempt from the T-BACT and ambient impact requirements of Maryland's regulations. However, the exemption applies only to the pollutants that are covered by the Part 61 NESHAP. The source must comply with the requirements of Maryland's regulation for any other pollutants emitted.

If a source is subject to a MACT (Part 63 NESHAP), then the source must comply with the MACT standard. In addition, the Maryland TAP regulations still apply to the source, that is, the source must quantify emissions, apply T-BACT (if applicable), and perform an ambient impact demonstration. For those sources that must apply T-BACT, compliance with the MACT satisfies the T-BACT requirement.

15. **I have a recent report, which showed that the ambient concentration of a TAP is greater than the screening level published by the Department. Shouldn't the Department be doing more to reduce the amount of TAPs to which I am being exposed, such as, additional regulation on industries, deny permits to new sources of TAPs, etc.?**

A screening level for a TAP is not and should not be viewed as an ambient air quality standard. Unlike federal air quality standards, screening levels are not scientifically based values developed from physiological studies or review of applicable health-based data. They are also not values at which adverse health effects will develop. In general, screening levels are derived conservatively from other health-based information involving workers exposed to the pollutant in question in a work environment. A screening level is 1/100th of the acceptable worker exposure level. The 1/100th factor was chosen to provide for the existence of multiple sources in an area and to protect segments of the population that may be more sensitive to a pollutant (e.g., small children). Thus, if the ambient concentration exceeds a screening level it is not direct evidence that public health is adversely impacted.

However, the Environmental Protection Agency is investigating the impact of multiple sources of pollution in urban areas. The Integrated Urban Air Toxics Strategy (IUATS) is taking a comprehensive look at emissions of toxics in urban areas to include stationary and mobile sources. The goal of the IUATS is to reduce the incidence of cancer in urban areas by 75%. The strategy was proposed in September 1998 and is expected to be final by June of 1999. Once final, the IUATS will provide a timeline for additional regulations to reduce emissions from large and small stationary sources and mobile sources. More information on the IUATS can be found on the following website: <http://www.epa.gov/ttn/uatw/112k/urbanpg.html>

16. **Who can I contact if I have questions on the Toxic Air Pollutant regulations or screening levels?**

The Air Toxics Office can answer questions on the regulations and provide screening levels for certain pollutants. The Air Toxics Office can be reached at (410) 537-3230. The Air Quality Permit Program webpage (<http://www.mde.state.md.us/arma/Programs/Aqpermit/aqpermit.html>) also has additional information concerning the Maryland Toxic Air Pollutant regulations and screening levels.